CLAIMS

Please amend the claims as indicated below.

1. (Currently Amended) A Taylor reactor ~~(101, 201, 301, 401)~~ comprising a reactor housing ~~(103, 203, 303, 403)~~, ~~having~~ a rotor ~~(104, 204, 304, 404)~~ which is disposed in the volume enclosed by the reactor housing ~~(103, 203, 303, 403)~~ and is rotatable about an axis, ~~having~~ a reaction volume ~~(102, 202, 302, 402)~~ formed between ~~the~~ an inner periphery of the reactor housing ~~(103, 203, 303, 403)~~ and ~~the~~ an outer periphery ~~(104.3, 204.3, 304.3, 404.3)~~ of the rotor ~~(104, 204, 304, 404)~~, ~~having~~ at least one inlet ~~(108.1, 208.1, 308.1, 408.1)~~ for the reactants and/or process media and ~~having~~ at least one outlet ~~(110, 210, 310, 410)~~ for the reaction products, disposed in the direction of the axis ~~(A)~~ at a distance from the inlet ~~(108.1, 208.1, 308.1, 408.1)~~, ~~**wherein**~~ wherein the reactor housing ~~(103, 203, 303, 403)~~ and/or the rotor ~~(104, 204, 304, 404)~~ are equipped such that the cross section of the reaction volume ~~(102, 202, 302, 402)~~ initially ~~rises~~ increases at least over part of a length of the rotor ~~from the inlet (108.1, 208.1, 308.1, 408.1) to the outlet (110, 210, 310, 410)~~ in an area adjacent the inlet and the cross section of the reaction volume ~~but the rise in cross section~~ does not increase at least over part of ~~the~~ the length of the rotor in an area adjacent the outlet ~~(104, 204, 304, 404)~~.

2. (Currently Amended) A Taylor reactor as claimed in claim 1, wherein ~~**wherein**~~ the rotor ~~(104, 204, 304, 404)~~ is disposed concentrically in the reactor housing ~~(103, 203, 303, 403)~~.

3. (Currently Amended) A Taylor reactor as claimed in claim 1, wherein ~~**wherein**~~ the reaction volume ~~(102, 202, 302, 402)~~ is of annular design.

4. (Currently Amended) A Taylor reactor as claimed in claim 3, wherein ~~**wherein**~~ the reaction volume ~~(102, 202, 302, 402)~~ has a circular periphery.

5. (Currently Amended) A Taylor reactor as claimed in claim 1, wherein ~~**wherein**~~ ~~the decrease~~ the cross section of the reaction volume in the area in which the cross section of the

reaction volume does not increase at least over part of the length of the rotor ~~in the rise of the cross section of the reaction volume (102, 202, 302, 402)~~ is continuous.

6. (Currently Amended) A Taylor reactor as claimed in claim 1, wherein ~~wherein~~ the cross section of the reaction volume in the area in which the cross section of the reaction volume does not increase at least over part of the length of the rotor ~~decrease in the rise of the cross section of the reaction volume (102, 202, 302, 402)~~ is discontinuous.

7. (Currently Amended) A Taylor reactor as claimed in claim 6, wherein ~~wherein~~ at least one of the reactor housing ~~(103, 203, 303, 403)~~ or the rotor ~~(104, 204, 304, 404)~~ have, in the direction of the axis (A), at least two sections whose inner periphery and/or outer periphery form(s) different angles with respect to the axis (A).

8. (Currently Amended) A Taylor reactor as claimed in claim 1, wherein ~~wherein~~ the ratio of the radius of the reactor housing (r_o) to the radius of the rotor (r_i) at least for part of the length of the reaction volume ~~(102, 202, 302, 402)~~ is <1.4.

9. (Currently Amended) A Taylor reactor as claimed in claim 1, wherein ~~wherein~~ the rotor ~~(104, 204, 304, 404)~~ is cylindrical.

10. (Currently Amended) A Taylor reactor having a reactor housing ~~(103, 203, 303, 403)~~, having a rotor ~~(104, 204, 304, 404)~~ which is disposed in the volume enclosed by the reactor housing ~~(103, 203, 303, 403)~~ in such a way as to be rotatable about an axis ~~(A)~~, having a reaction volume ~~(102, 202, 302, 402)~~ formed between the inner periphery ~~(103.1, 203.1, 303.1, 403.1)~~ of the reactor housing ~~(103, 203, 303, 403)~~ and the outer periphery ~~(104.3, 204.3, 304.3, 404.3)~~ of the rotor ~~(104, 204, 304, 404)~~, having at least one inlet ~~(108.1, 208.1, 308.1, 408.1)~~ for the reactants and/or process media, in particular as claimed in claim 1, wherein ~~wherein~~ an outlet region ~~(109, 209, 309, 409)~~ which opens out into an outlet ~~(110, 210, 310, 410)~~ is provided which in the reactor housing ~~(103, 203, 303, 403)~~ at one end face of the rotor ~~(104, 204, 304, 404)~~ adjoins the reaction volume ~~(102, 202, 302, 402)~~ and narrows to an outlet ~~(110, 210, 310, 410)~~ and wherein ~~wherein~~ the end face of the rotor ~~(104, 204, 304, 404)~~ is designed such that the reaction volume ~~(102, 202, 302, 402)~~ opens out at least essentially without deadspaces into the outlet ~~(110, 210, 310, 410)~~.

11. (Currently Amended) A Taylor reactor as claimed in claim 10, wherein ~~wherein~~ the end face of the rotor ~~(104, 204, 304, 404)~~ is designed such that in the direction of the axis (A) the cross section of the outlet region ~~(109, 209, 309, 409)~~ is at least substantially constant.

12. (Currently Amended) A Taylor reactor as claimed in claim 10 or 11, wherein ~~wherein~~ the reactor housing ~~(103, 203, 303, 403)~~ is configured such that the outlet region ~~(109, 209, 309, 409)~~ is in the shape of a funnel and the end face of the rotor ~~(104, 204, 304, 404)~~ is of conical design.

13. (Currently Amended) A Taylor reactor

having a reactor housing ~~(503)~~,

having a rotor ~~(504)~~ which is disposed in the volume enclosed by the reactor housing ~~(503)~~ in such a way as to be rotatable about an axis ~~(A)~~,

having a reaction volume ~~(502)~~ formed between the inner periphery ~~(503.1)~~ of the reactor housing ~~(503)~~ and the outer periphery ~~(504.3)~~ of the rotor ~~(504)~~, having at least one inlet ~~(508.1)~~ for the reactants and/or process media and having at least one outlet ~~(510)~~ for the reaction products, in particular as claimed in claim 1, wherein ~~wherein~~ the outlet ~~(510)~~ opens out into the reaction volume ~~(502)~~ at a radial distance from the axis ~~(A)~~.

14. (Currently Amended) ATaylor reactor as claimed in claim 13, wherein ~~wherein~~ the outlet ~~(510)~~ opens out transversely, preferably perpendicularly, to the axis ~~(A)~~ into the reaction volume ~~(502)~~.

15. (Currently Amended) A Taylor reactor as claimed in claim 13, wherein ~~wherein~~ the region ~~(B)~~ of the rotor ~~(504)~~ that is adjacent to the outlet ~~(510)~~ comprises means for generating a circulation flow around the axis ~~(A)~~.

16. (Currently Amended) A Taylor reactor as claimed in claim 15, wherein ~~wherein~~ the region ~~(B)~~ of the rotor ~~(504)~~ that is adjacent to the outlet ~~(510)~~ is designed in the manner of a centrifugal pump rotor.

17. (Currently Amended) A process for converting substances, where the kinematic viscosity ν of the reaction medium increases in the flow direction of the reactor, ~~**which comprises**~~which comprises using therefor a Taylor reactor as claimed in claim 1.

18. (Currently Amended) A process as claimed in claim 17 for preparing sustances selected from the group consisting of polymers, copolymers, block polymers, graft copolymers, polycondensates, polyadducts, core/shell lattices, polymer dispersions, products of polymer-analogous reaction, including esterification, amidation and urethanization of polymers containing side groups suitable for such reactions, olefinically unsaturated materials curable with electron beams or ultraviolet light, or mesophases.

19. (Currently Amended) A process of making at least one member of the group consisting of moldings, films, coating materials, paints, adhesives, and sealants, comprising using at least one substance prepared by the process of claim 17.

20. (New) A Taylor reactor comprising:

a reactor housing;

a rotor having an axis and disposed in the volume enclosed by the reactor housing;

a reaction volume formed between an inner periphery of the reactor housing and an outer periphery of the rotor;

at least one inlet in the housing for at least one of a reactant or a process media and at least one outlet in the housing for the product of the at least one of a reactant or a process media disposed opposite the at least one inlet, wherein the reactor housing in the area of the rotor has a first section and a second section, the first section having a cross section of the reaction volume that increases as the reaction volume extends from the inlet to the outlet, and the second section having a cross section of the reaction volume that increases as the reaction volume extends from the inlet to the outlet to a lesser extent than the increase of the first section.